Subject: Science Grade: Fifth

Standard: #4 The Living Environment

Key Concept: Matter and energy flow through the environment in a cyclic nature.

Generalization: Matter, including water, carbon dioxide, oxygen, and nitrogen, cycles between living and non-living things in ecosystems

Background:

Students have been studying populations and ecosystems. They understand what makes up ecosystems, the flow of energy in an ecosystem, food chains and food webs, herbivores, carnivores, mutualsim, commensalism, and parasitism. Students have visited a pond and a field ecosystem, focusing mainly on the organisms found in these areas.

Students will work with different content, but will use the same process for working with the content. **Note**: Products may be the same or you may allow each group to choose from a prepared list or simply have free choice.

What students will do: Students select the cycle in which they have an interest. Students should work in groups of four or less, so you may have several groups working on the same cycle. Using their text and supplemental materials, each group will research their chosen cycle. They need to find out the importance of the cycle, the components, what happens if the cycle is out of balance, and any other interesting information. Each group should prepare a visual aid to use in presenting their cycle to the rest of the class. They will be teaching the rest of the class about the cycle they have chosen. At this point, you may want groups researching the same cycle to plan their presentation to the class together. For this product, see the note above.

You will need to have adequate resources, Internet access, supplemental texts, and/or library access to ensure that students go beyond their own text. Materials for the products will depend on what the students choose as the

vehicle for their presentation, unless you narrow the choices for them. You may also wish to limit the presentation to a particular type, such as PowerPoint.

This lesson is tiered in ***content*** according to ***interest***.

Tier I: ***Nitrogen Cycle***

Tier II: ***Water Cycle***

Tier III: ***Oxygen-Carbon Dioxide Cycle***

Assessment:

Teacher observation and student interviews during the actual group work serve as formative assessments. Once the products are completed, have students meet together as a whole class and share their products. Students may be assessed on accuracy and presentation skills through a teacher-prepared rubric. For additional summative assessment, ask students what evidence they have that each cycle was at work in the two ecosystems they visited. You may wish to go back to the field and the pond to gather first hand evidence to support their ideas.